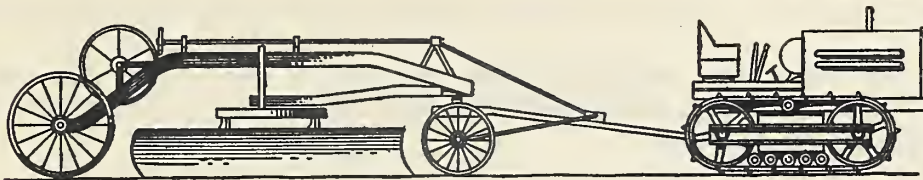
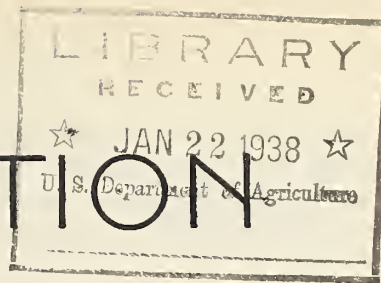


## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



# CONSTRUCTION



## HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE  
WASHINGTON, D. C.

Vol. 4

January 22, 1938.

No. 2.

REO MAINTENANCE  
By Oscar Wiederhold

Considerable difficulty has been experienced with the 1935-2B Reo dump trucks. The most frequent complaints against these trucks have been:

1. Failure of differentials.
2. Failure of left rear motor supports.
3. Failure of steering knuckle pivot (spindle).

Various methods for correcting these failures have been suggested and tried by the field forces. The following recommendations are the result of the experiences gained by the field and a detail study made by the Washington Engineering Office.

1. (a) In replacing differential cases, only the new type should be accepted. These can be identified by the fact that the bolts extend through both halves of the differential case, in contrast to the old use of studs to hold the halves together.  
  
(b) It is further recommended that the differential ratio be changed from 6.6 to 5.8 or 5.5 which will necessitate changing the pinion from 5 to 6 teeth. It is the increase in the number of pinion teeth that is desired. It is felt that these changes will eliminate the present difficulty of loosening of case studs, and breaking of ring gear and pinion teeth.  
  
(c) Blocking out the low-low transmission shift may also be required. This further reduces the power to the rear axle parts.  
  
(d) Some shops have experimented with electric-welding the two differential cases together. Others have installed a number of hardened steel dowls be-

(over)

tween the two halves of the case to absorb the twist. While these methods have been satisfactory in some cases, the accuracy and skill required makes such jobs possible only in the best equipped shops. The method outlined under "b." is recommended.

2. Breaking of motor supports is being eliminated by the following procedure.

(a) Tying the frame together under the clutch housing by the use of a piece of heavy channel iron shaped to fit around the housing and welded to the bottom frame flanges.

(b) Mounting the left rear and right front motor supports on springs. This is accomplished by using a longer motor support bolt and a Reo valve spring.

(c) Reinforcing the front of the frame to prevent twisting by using a heavy channel section between the flanges of the frame rails.

(d) It is important that the starting motor studs be maintained tight at all times.

3. The exact cause for the breaking of steering knuckles has not been definitely determined. It had originally been supposed that the use of 8.25 x 20 balloon tires rather than the 34 x 7 high pressure tires would correct the difficulty. This was based on the theory that the low pressure tires would transmit less road shock to the knuckle pivots. Deeply rutted roads are believed to be a contributing factor, and it is believed that a smaller tire size, such as 32 x 6 or 7.00 x 20, will decrease the frequency of fracture when operating under such conditions.

In addition to the above the Reo Company is now supplying a new type steering knuckle. The only change apparent is in the fillet where the pivot attaches to the knuckle proper. A new bearing cone is supplied with each new type knuckle and carries a Timken Number 2776. It is important that only this type knuckle be accepted from Reo parts dealers. There is no change in the Reo parts number so that the fillet must be carefully examined for the larger radius.

In operating the Reo trucks it should be borne in mind that care must be exercised not to overload any part of the chassis. The chassis is none too strong for the rated capacity. Hence they should never be overloaded. If the roadbed is very rough, they should be limited to something less than full loads.

It is also important that wheel bearings be maintained in proper adjustment at all times and that the inner bearing cones be kept tight on the pivot.

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
CALIFORNIA FOREST AND RANGE EXPERIMENT STATION



ADDRESS REPLY TO  
DIRECTOR  
AND REFER TO

UNIVERSITY OF CALIFORNIA  
381 GIANNINI HALL  
BERKELEY, CALIFORNIA

PORTABLE TRACING TABLE

For emergency use in the field recently, a portable tracing table was made that has proven so satisfactory as to merit description. Its attributes are compactness, light weight, ease of use and carrying, ruggedness, and cheapness.

A working space of 18 x 22 inches is provided, large enough for atlas-size sheets. Folded for carrying, the overall dimensions are only 20 x 24 x 1-3/4 inches.


The folding back serves as a prop when open; closed, it gives full protection to the under side of the glass. While the table is in use for tracing in the office, its plywood cover makes a good portable map board for field use.

Back-slipping on the desk top is prevented by two metal plates that project downward half an inch from the tracing frame's lower front edge.

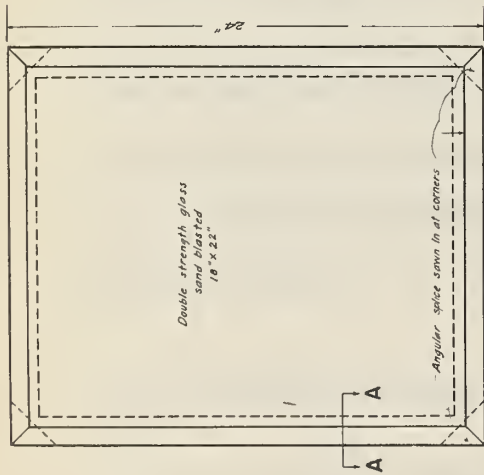
Frosted glass 1/8-inch thick has proven amply strong, and it is lighter in weight and cheaper than the heavier plate-glass customarily used. Scotch tape is sufficient to hold the glass in its groove.

Illumination is by a single electric bulb and easily-packed extension cord, without shade.

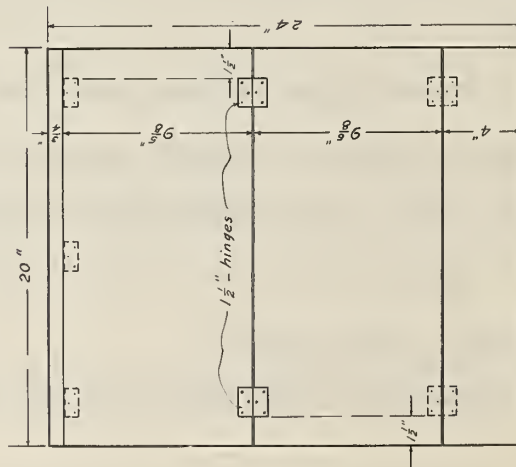
Materials purchased in the open market cost less than \$4.00.

  
CLARK H. GLEASON  
Assistant Forester

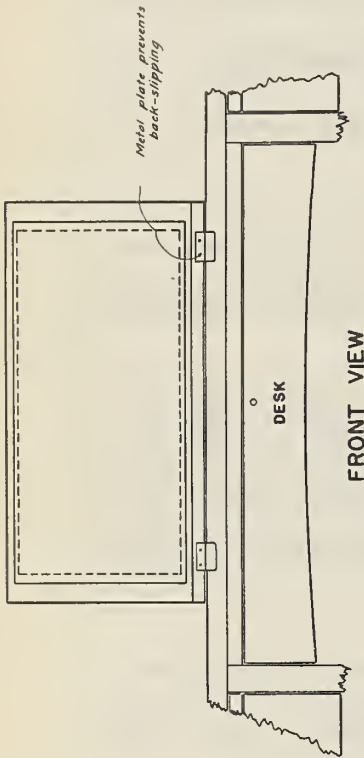




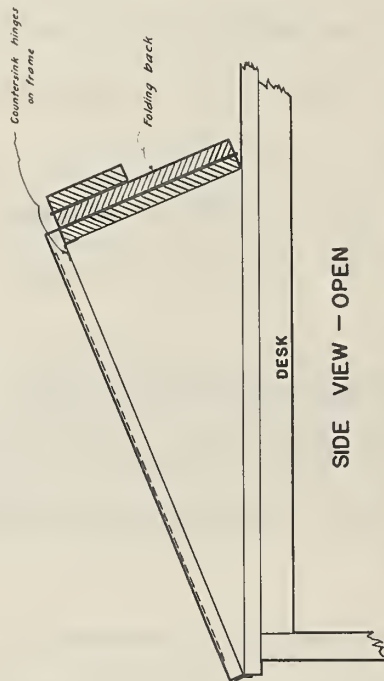
WORKING SURFACE



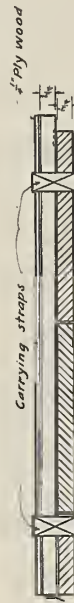
BACK VIEW, CLOSED  
(GLASS PROTECTED)



FRONT VIEW



SIDE VIEW - OPEN



SIDE VIEW - CLOSED



SECTION, AA  
(ACTUAL SIZE)

# BILL OF MATERIALS

- STOCK LENGTHS
- Surfaced on 2-sides, jointed 2-sides:
- 2-pcs 26" x 1 1/2" x 3/4"
  - 2-pcs 25" x 1 1/2" x 3/4"
  - 2-pcs 22" x 9 5/8" x 3/4"
  - 1-pc 22" x 4 1/2" x 3/4"
  - 1-pc 1" x 20" x 24"
  - 1-pc 8" x 16" x 22"
- GLASS
- HARDWARE
- 2-1" x 4-8" carrying strap
  - 2-1 1/2" x 12" x 157" metal angle plates
  - 7-1 1/2" x 1 1/2" hinges
  - 42-8" x 6 PH wood screws
  - 4-8" x 6 RH "

## PORTABLE TRACING TABLE

U.S. DEPT. OF AGRICULTURE FOREST SERVICE  
CALIFORNIA FOREST & RANGE EXP. STATION  
E. L. KOTOK, DIRECTOR

PROJECT: FOREST INFLUENCES  
DESIGNED BY: CH. GLEASON DATE: 10-7-37  
DRAWN BY: C. L. KOTOK DATE: 11-23-37  
APPROVED BY: C. L. KOTOK DATE: 1-7-38  
SCALE: 1/4" = 1" DRAWING NO. \_\_\_\_\_

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
CLEARWATER NATIONAL FOREST



ADDRESS REPLY TO  
FOREST SUPERVISOR  
AND REFER TO

OPPOFINO, IDAHO

CONSTRUCTION HINTS

Fire-Hose Box

Put a T joint with cut-out valve in main pipe line. Attach a 1-1/2" diameter pipe upward so that it will extend 3' above ground level. Attach a globe valve and an additional 12" section of pipe.

Construct a box by nailing 1"x8"x4' material to 1"x2"x4' strips at the top and a 2"x6"x4" piece at the base. The rear end of box is also 2"x6"x4'. Cover with gable roof made of two pieces of 1"x8"x4'-4". The use of a door in front is optional.

Bore a 1-9/16" diameter hole in base of box about 3" from the rear end.

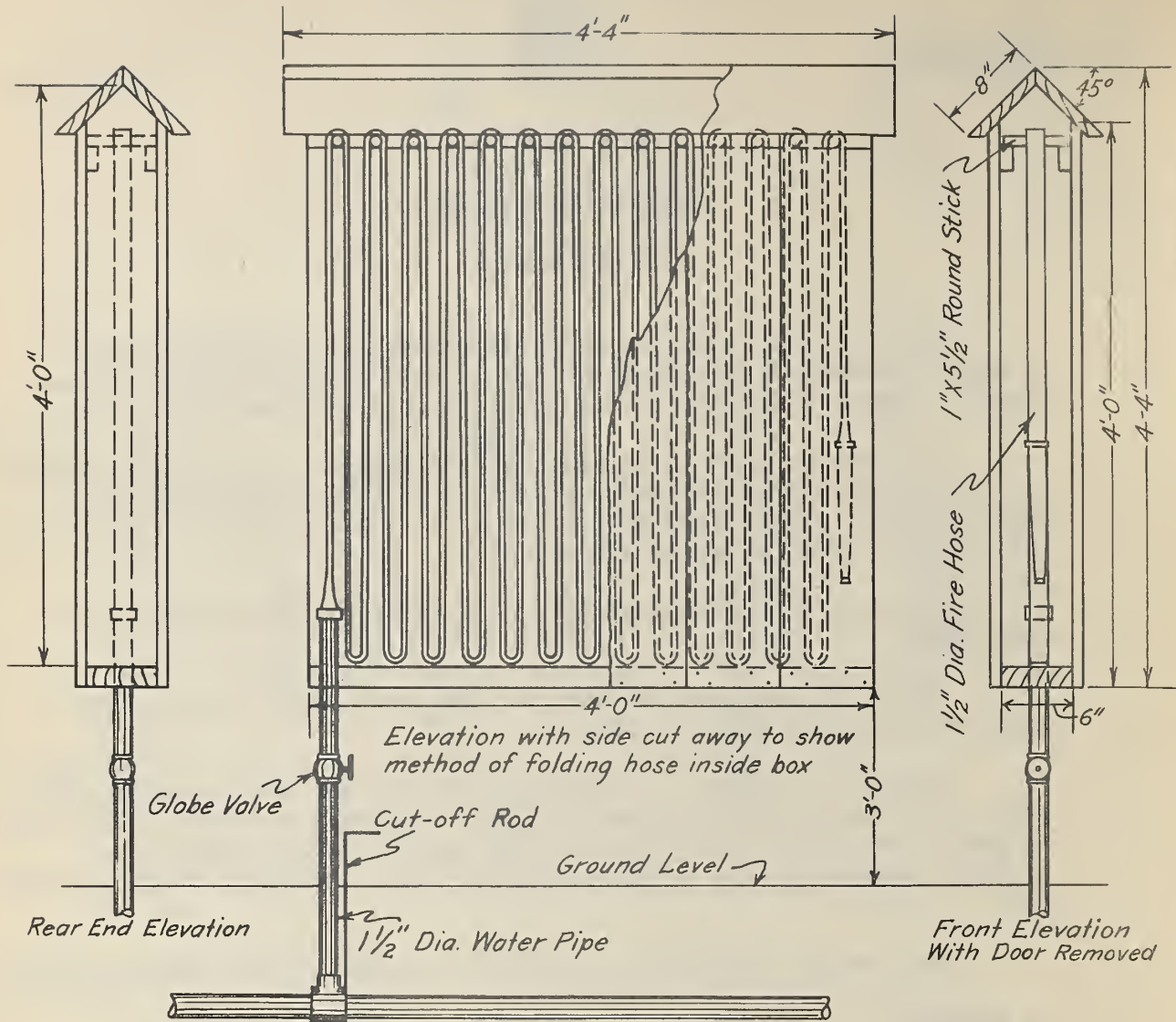
Place the box over the upright pipe and mount the box on the side of a building or on a post.

Attach one end of a 1-1/2" fire hose to the water pipe in the rear end of the box. Fold hose *W* and place a 1"x5 1/2" round stick in each upper fold of the hose and hang on the rack formed by the 1"x2"x4' nailing strips in the top of the box. Push hose compactly into box.

This box will hold 200' of 1-1/2" linen hose with nozzle attached.

To Operate:

Open globe valve, open door of box, grasp nozzle and run toward fire. Force of water will kick hose out of box.



**FIRE HOSE BOX**  
 DESIGNED BY J.P. GAFFNEY  
 DISTRICT RANGER  
 CLEARWATER NATIONAL FOREST